THE MILBANK MEMORIAL FUND

QUARTERLY BULLETIN

BERTRAND BROWN
EDITOR

CONTENTS

OCTOBER • 1932
VOL. X NO. 4

The Milbank Memorial Fund QUARTERLY BULLETIN is published by the Milbank Memorial Fund, 40 Wall Street, New York. Printed in the U. S. A.

A TUBERCULOSIS SERVICE FOR CHILDREN

by MARGARET WITTER BARNARD, M. D.[1]

OUR increasing knowledge of tuberculosis in children is opening up a highly specialized field. It is becoming evident in tuberculosis clinics that a separate service is needed to deal with the diagnosis and care of tuberculous children. And it is also apparent that to deal with these problems effectively tuberculosis in the child must be considered not only as it relates to the child proper but also as it affects, or is affected by, its family situation. Frequently the intensive, costly care given to the individual child has failed to accomplish lasting results because the family situation has been ignored.

In order effectively to safeguard the tuberculous child, it is necessary to know whether or not there are other cases of tuberculosis in the family group and how great the risk of further exposure to infection will be if the child remains in the group. The complexity of family situations in cases of tuberculosis in children may be graphically illustrated by charts such as those given below. These are based on data gathered in the tuberculosis clinic services for adults and children at the Bellevue-Yorkville Health Center over a period of years.

In the first, a young mother, nineteen years of age, was referred to the tuberculosis clinic for adults by the nurse in the baby health station. She had had a pneumonia from which she did not seem to recover completely, although she was well enough to care for her two young children and bring them to the baby station. On examination she was found to have an extensive tuberculous lesion with a sputum loaded with tubercle bacilli. She was hospitalized immediately and

[1]Dr. Barnard is medical director of the Bellevue-Yorkville Health Demonstration.

her two children, who attended the infant and preschool clinics, were referred to the children's tuberculosis service for consultation. The six-month-old infant, who three months earlier had had a negative X-ray, now showed a fairly extensive parenchymal lesion. He was hospitalized but died three months later. The two-year-old girl had a pleural effusion. She also was hospitalized and later sent for sanatorium care. The other members of the family were then examined. The maternal grandmother, who was apparently in good health, was found to have a moderately advanced lesion. The other children of the family were also infected and one child has developed a lesion which is probably tuberculous. Simply to have removed the acute case in this family would not have been sufficient to safeguard the other members, and further plans for the children must be influenced by the presence in the home of another case. (*See* p. 266.)

In the second illustration, a boy of five years was given a routine intradermal tuberculin test in the preschool clinic. This was positive and the X-ray findings were suspicious, although the child seemed fairly well. He was carefully observed and a diagnosis of tuberculosis was finally established. It was found that his brother was infected but had no demonstrable lesion. Both children were transferred to the children's tuberculosis service for observation and both subsequently developed definite tuberculous lesions. The fifteen-month-old baby became ill and died in Bellevue Hospital of a bronchopneumonia which was thought to be tuberculous in origin, although it could not be proved as no autopsy was permitted. After much questioning it was found that the boy's father, then dead, had been an open case of tuberculosis in the home for some time, no precautions having been observed. After the death of the baby the mother finally consented to be examined and was found to have a

THE HEALTH COMMISSIONER COMMENTS

FOUR years ago when I took office as Commissioner of Health, the service rendered by the City of New York to children exposed to tuberculosis or suffering from tuberculosis, was on a very low plane, approximately one-fifth of the contacts being examined and the physical examinations made usually by men unskilled in childhood tuberculosis. Not any of the children were tuberculin tested or X-rayed.

Today, we are examining close to 90 per cent of the contacts. They are all tuberculin tested and those who give a positive reaction are X-rayed.

The dissatisfaction which I felt and gave expression to four years ago, has apparently borne fruit and stirred us out of our lethargy. Had it not been that we had such a well-equipped "laboratory" as Bellevue-Yorkville, it would have been more difficult to have initiated these new procedures.

The well-organized plan which Dr. Barnard presents fully justifies the efforts we have made to put new life in the attack upon tuberculosis and I am glad to have this opportunity of expressing my satisfaction and of complimenting her and the staff of the Bellevue-Yorkville Health Center on the fine work which has been done.

SHIRLEY W. WYNNE, M.D.
Commissioner of Health, City of New York

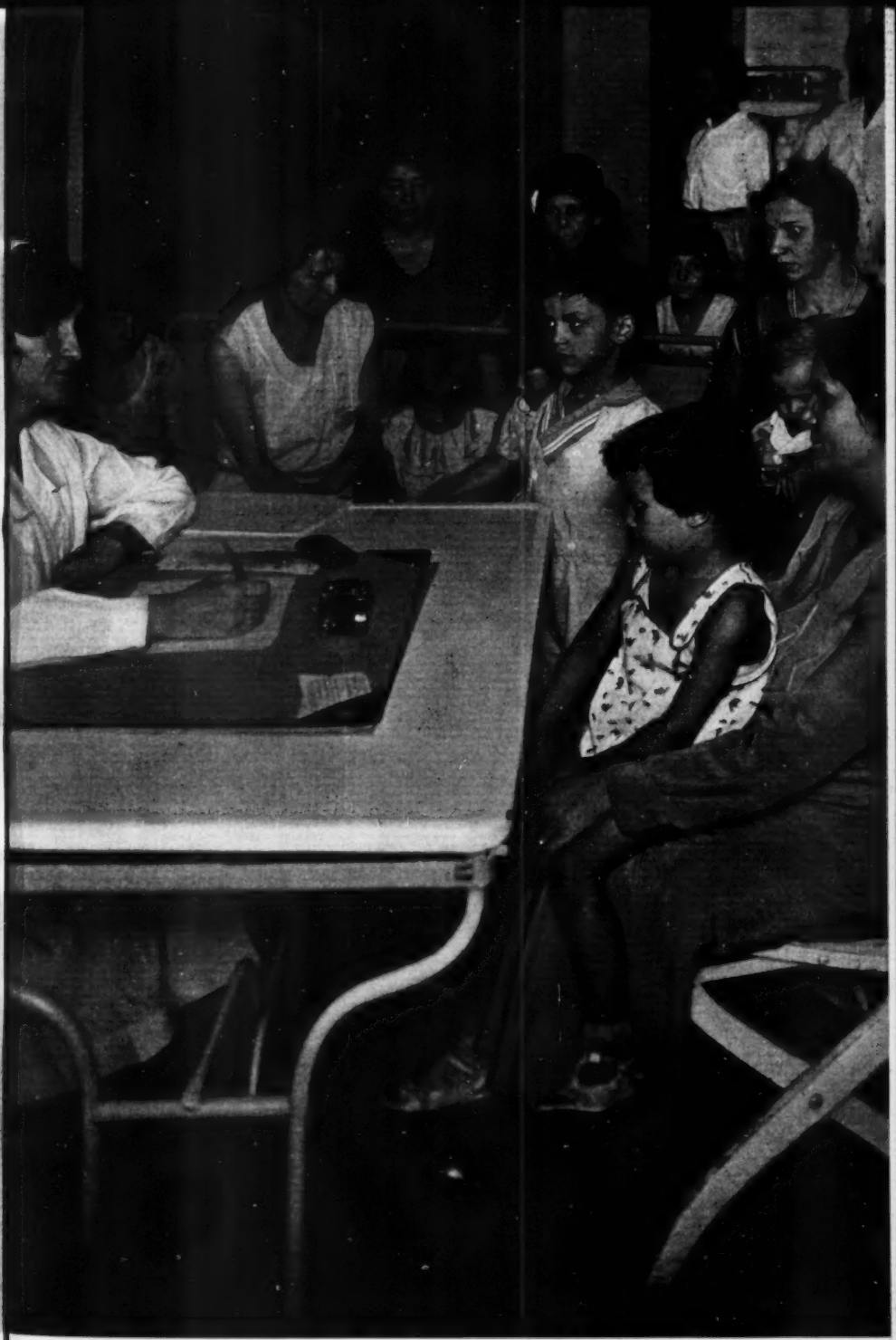
quiescent minimal lesion. She was placed under clinic supervision and taught to take proper precautions. The five-year-old boy has had a period of country care and the mother has learned to take excellent care of him at home so that he is making good progress toward healing his lesion. Under clinic supervision and with intelligent care at home, the eight-year-old boy has handled his infection very well and is in excellent condition. (*See* p. 267.)

If tuberculous children are to be cared for intelligently, not only must the clinic view the problem as a family situation but the family must also be educated to a similar viewpoint. In this manner only may the cooperation of the family be secured.

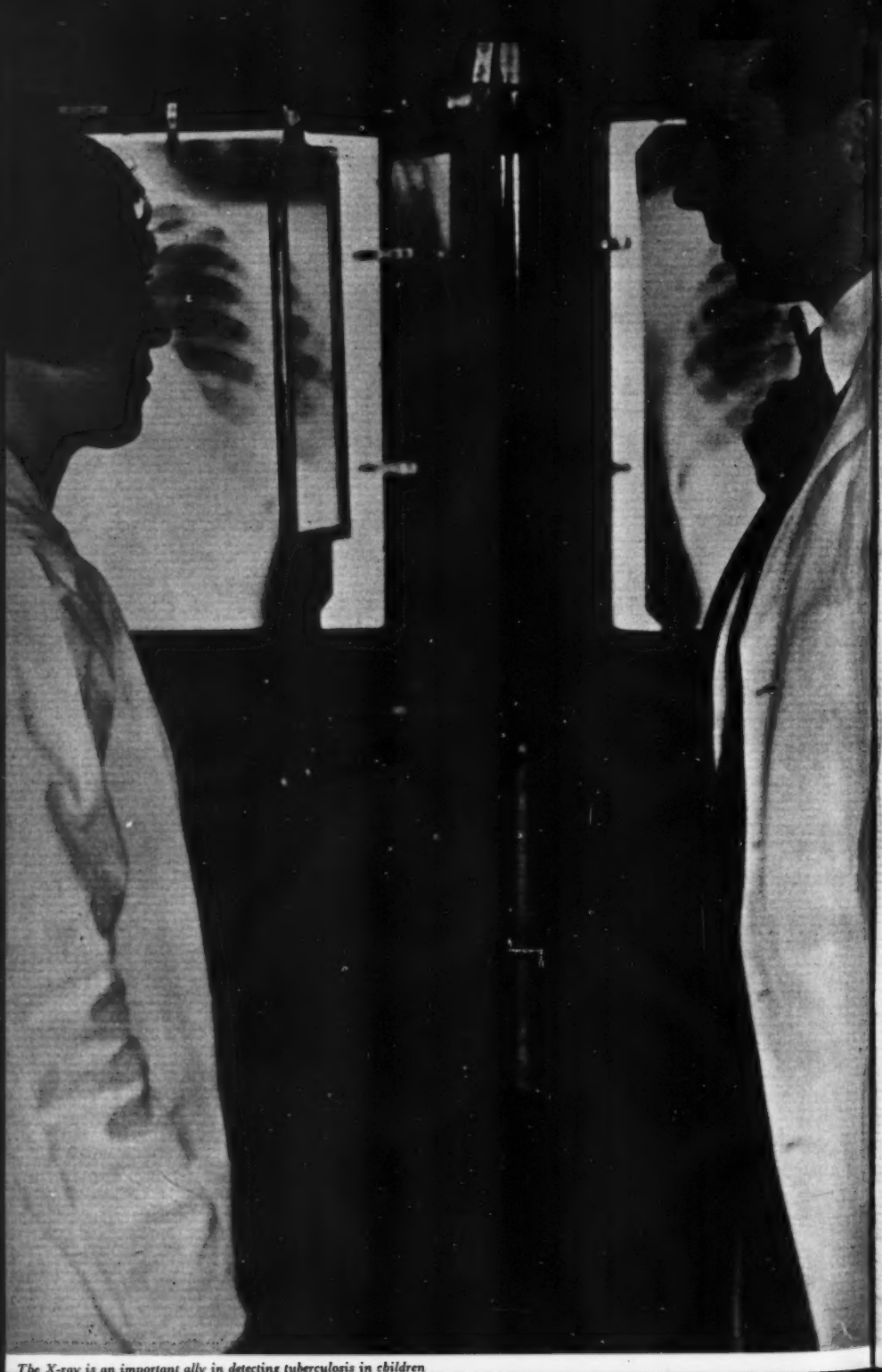
In an acute illness, family plans can usually be changed or set aside with comparatively slight inconvenience. It is an entirely different matter, however, when the

family is required to readjust its routine to so chronic an illness as tuberculosis. After the immediately necessary care, such as hospitalization or sanatorium treatment, has been arranged for, the most important problem is to safeguard the family group from further infection. This may necessitate removing the source of infection from the family, or establishing adequate precautions, or removing the younger members of the group from the home. Whatever the solution, it involves definite readjustment of family relationships. Then a workable family regime must be established which will safeguard the tuberculous child without stigmatizing him. Without guidance, a family, through its eagerness to do everything possible for the sick child, may go to the extreme of allowing him to tyrannize the group. It is not unusual to find the tuberculous child receiving more than his share of food and attention while the other children in the family begin to slip below par physically and emotionally because they must give up at all times to the child who is considered ill.

Careful integration of the children's and adults' tuberculosis services is necessary in order to give the doctors and nurses a well-rounded view of the whole problem. Each service should act in a consultant capacity for contacts referred from the other service. Records should be easily available so that they may be studied in family units. A similar relationship should be maintained between the children's tuberculosis service and the general pediatrics service. Just as children need to be referred to the tuberculosis service for specialized diagnosis and care, so the pediatrics department can often be of assistance in evaluating the significance of and in correcting other defects found in tuberculous children. It is impossible to treat tuberculosis in a child as an entity apart from his general condition.



Examination of children in contact with adult tuberculous patients



The X-ray is an important ally in detecting tuberculosis in children

It was on such conceptions as those given above that a children's tuberculosis service was established in 1930 as a separate unit in the Bellevue-Yorkville Health Center, and what follows is based on the experience accumulated in operating this service. A children's tuberculosis service must have four objectives in view:

1. To screen out the children with tuberculosis and to determine the significance of their lesions.
2. To plan adequate care for them, including finding the source of their infection and breaking the contact.
3. To educate the families to regard tuberculosis as a family problem and to help them make adequate plans to deal with it.
4. So to record and assemble all data that they will be available for use in further studies of the general problem.

The children's tuberculosis clinic should offer diagnostic service to children from several sources. Child contacts of patients in the adult tuberculosis service should be referred as a matter of routine to the children's service for examination. Not only is it of importance to detect all tuberculosis in this group, but also through these examinations to gain a picture of the general health problems with which the family must deal. Social agencies, school physicians and nurses will wish to refer to this clinic children who present suspicious symptoms or history of exposure. And the child hygiene services will constantly use this special service for consultation. Routine tuberculin tests, followed by X-ray examination of the positive reactors, in the infant and preschool groups will screen out a number of children who should be referred for further consultation on diagnosis and care. Although a well-organized and integrated tuberculosis service for children is costly, it will show very definite results both in controlling the disease in children and as a method for case finding among

the adult contacts. When funds are limited, experience indicates that the two groups showing the most significant lesions, needing the most intensive care, and giving the best results are the preschool and the adolescent.

In order to render the work of the clinic most effective, it is of prime importance that the diagnostic procedures of the clinic should be carefully standardized and of high technical quality. Each child should receive (1) a complete pediatric examination, (2) an intradermal tuberculin test, and (3) a flat and oblique X-ray. On these data, in conjunction with a careful history and an understanding of the home conditions of the child, will be based the disposition of the case. Because it is impossible to separate tuberculosis in a child from his general condition, the physician in charge of this service should be a competent pediatrician. The child's nutrition, its other defects, and its daily habits all enter into the clinical picture and the physician must be able to evaluate them. In addition he must be able to evaluate the signs and symptoms which make him suspect the presence of a tuberculous lesion, and this is by no means easy. The tuberculous children seen in clinics are rarely acutely ill and on physical examination often do not present any definite signs. The slight elevation of temperature frequently found in these cases might come from any one of a dozen causes and its origin cannot usually be determined in one or two clinic visits. We must rely for our diagnoses on several items. The tuberculin test, if positive, tells us that the child is harboring living tubercle bacilli in his body but the test gives us no information as to their number, their virulence, or their location. The X-ray film may show very definite lesions in the parenchyma and tracheobronchial nodes but requires considerable skill and experience in interpretation. A history of intimate or prolonged exposure to tuberculosis is of considerable significance but it is often

difficult to obtain an accurate record from patients of the clinic type. The symptoms are usually rather vague, the most important being fatigability and failure to gain weight. Only when the picture is clearly defined and all other causes such as chronic upper respiratory infections, nutritional disorders, or poor hygiene have been ruled out, is one justified in making a diagnosis of tuberculosis. This requires essentially an alert and experienced diagnostician.

Experience indicates that the children examined fall into several general groups. A large number prove to be non-tuberculous and may be discharged, or, if there are other defects to be corrected, may be referred for follow-up to the child hygiene clinic for that age group. However, children known to be in contact with tuberculosis should be examined periodically as long as that hazard persists. Another group consists of those having positive tuberculin reactions but no demonstrable lesions and no known source of infection. Beyond the necessary correction of defects, little need be done for these children except to establish such a relationship with the clinic that, should symptoms appear subsequently, the child will return to the clinic for reexamination. These children should also receive a yearly examination.

A third group consists of children who have positive tuberculin reactions without demonstrable lesions but who are known to be in contact with a source of tuberculous infection. To these more close supervision should be given, and they should be examined and X-rayed every six months up to and through adolescence. Meanwhile every effort should be made through the adult tuberculosis service to control the source of infection so that it shall not be a menace. If this cannot be done it may sometimes be necessary to break the contact by removing the child from the home. Finally, there will be left a comparatively small group of children who are diagnosed

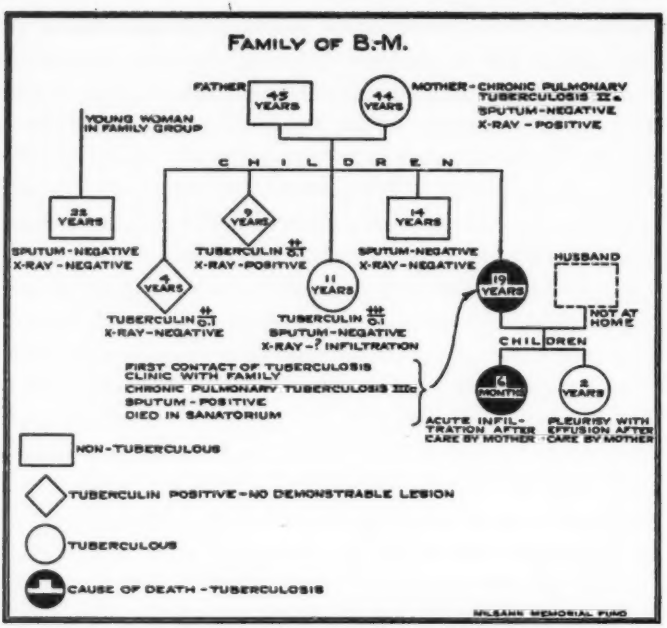


Fig. 1. An illustration of the extent of tuberculosis within a family group and the need of protecting the child in the tuberculous household.

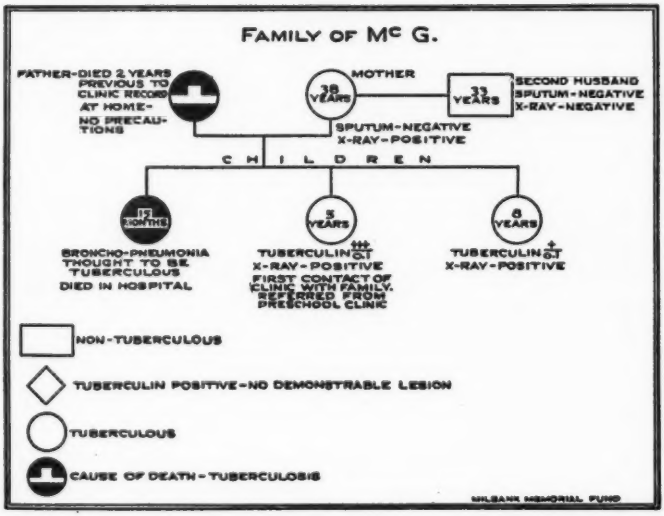
as tuberculous or who need further study to determine the actual cause of their condition, and it is on this group that the clinic service should be concentrated.

Experience again indicates that the tuberculous children may be divided, for purposes of care, into several general groups. Some cases with acute, active lesions need immediate hospitalization and it should be possible to refer them directly to a children's tuberculosis service in a hospital. An official affiliation between the clinic service and a hospital ward service will save much time and avoid expensive reduplication of effort. It will also be easier in many cases to secure the consent and cooperation of the family, if the child

is to be cared for by an allied group with which the mother feels she already has some contact. The clinic physician should be able to follow the case in the hospital and, if the child recovers sufficiently to be able to return home, it should be returned to the supervision of the original clinic. In many cases, of course, the child is referred by the hospital for a period of sanatorium care before returning to the clinic. In either event the clinic should establish some method of exchange of records so that pertinent interval data may be added to the clinic record.

Another group of cases may be referred directly to sanatoria without first being hospitalized, and this type of care should be arranged through the clinic. It may be that a period of supervised care in improved surroundings will give

Fig. 2. A second illustration of the extent of tuberculosis within a family group and the need of protecting the child in the tuberculous household.



the child the extra margin of safety which will enable him to overcome his infection. Or it may be necessary to remove the child from contact with a source of infection in the home and thus to safeguard him against receiving an additional dose of tubercle bacilli which may be too great for him to resist.

It is possible to secure such care for children from six to twelve years of age, but the difficulty of securing proper care for younger age groups, particularly infants, and for adolescents is a very serious handicap to the work of the clinic. The preschool and adolescent groups present an especially difficult problem since it is in them rather than in the six-to twelve-year-old group that significant lesions requiring institutional care seem to be found most frequently. The preschool children need more supervision in an institution and they require assistance in taking care of themselves, in dressing and undressing. They are also more liable to minor illnesses. Adolescent girls who have begun to menstruate are ineligible for children's institutions and yet they are not sufficiently mature mentally to make a suitable adjustment in the sanatorium for adults.

The third and by far the largest group of tuberculous children can be cared for by clinic supervision, if the cooperation of the family can be secured. Experience shows that children of the school age group handle tuberculous lesions remarkably well and that intelligent home care is usually sufficient. At this age the child's life has become fairly well stabilized. He has established routines of work and play, eating, sleeping, et cetera, and he has become accustomed to discipline in his school life. In most schools there is sufficient medical inspection and care so that a child who is falling below par is noticed and sent for examination.

There are several reasons why it seems better to keep these children at home, if it can be safely done, than to

institutionalize them. All too often a child is sent for six months to an institution and then is returned to his family who know nothing about caring for him properly. In a short time he loses the benefit derived from his stay in the institution by the neglect or improper care he receives at home.

Loss in school time should also be considered carefully, for the education of their children is an earnest matter with most families. Although institutions endeavor to provide school facilities, it is difficult for a child to keep up with his class in a city school if he has been away for several months. Being dropped back in school arouses the resentment of the parents and handicaps the child by taking him away from his normal age group. It would seem better to expend some time and money in educating the family so that the child might with safety remain at home and continue his school life without endangering his health. It may be necessary for a child whose general condition is below par and who may have difficulty in healing his tuberculous lesion, to be placed in a special class where he will be given extra rest and nourishment and medical supervision. However, most children with the usual type of childhood tuberculosis will be able to follow a regular school program if the parents will cooperate by giving them proper care during the time spent outside the school. This is a problem which the family must face frankly and handle intelligently over a considerable period of time without letting it stigmatize the child or set him apart from his group.

Both the doctor and nurse must consider with the mother the problems of diet, hygiene, adequate rest and sleep, suitable recreation, and the carrying on of a normal school program. They must be sure not only that the mother understands the reasons for the new regime, but that it is so planned that it will be possible of attainment in her particular

circumstances. This implies a friendly personal relationship between the clinic personnel and the mother, and sufficient visiting in the home by a nurse to gain a knowledge of existing conditions. The mother must also understand the necessity of protecting the child from further exposure to tuberculosis and of continued medical supervision.

The responsibility of regular attendance at the clinic must be placed on the mother and on the child himself as soon as he is old enough to understand its importance. In order to secure the cooperation of the child, the clinic must be a friendly place to which he will enjoy going. Books and simple games relieve him of the tedium of waiting. The doctor can accomplish a great deal more with a child who comes in for examination in a relaxed and friendly mood than he can with one who has become irritable or fearful. Much depends on securing for such a clinic doctors and nurses who are genuinely interested in children and understand their interests and problems.

Experience indicates that the cooperation of the mothers in bringing their children to the clinic regularly is proportional to the amount of service which they receive from the clinic. A sympathetic individual conference with the mother will help her to understand the reasons for the doctor's recommendations and the necessity for returning at a stated time. A mother who brings her child to the clinic because she wants to, values the service received and gets more from that clinic visit than if she simply comes because a nurse asks her to do so. Although such individual conferences in the clinic are time-consuming, they help to save home-nursing visits for delinquents, thus releasing nursing time for a more productive type of visit.

It is particularly hard to hold the adolescent group who need supervision most. They begin to escape from parental

authority, to resent being treated as children, and to feel stigmatized by attending the clinic. In some foreign families the marriageability of the girls is impaired if it becomes known that they attend the clinic, and every effort is made by the parents to avoid any mention of tuberculosis. Adolescence often is a period of increased stress and strain in the daily lives of the children. They may go into high school with increased academic work and additional social responsibilities, or they may have to adjust to industrial life. In either case they need guidance and supervision until they are safely established in adult life. It sometimes happens in the clinic that the personnel who do particularly fine work with younger children fail entirely in their dealings with the older children. One solution may be to have a flexible age group, say from twelve to twenty, served by different personnel who have a sympathetic interest in children of those ages.

It is easy in a busy clinic to fall into the habit of examining the children coming in for periodic supervision rather perfunctorily. This may have disastrous results, for children can develop serious lesions with comparatively few symptoms. The danger is particularly great if the child is in contact with a case of tuberculosis. Only careful physical examinations and periodic X-rays will safeguard these children. Two cases from our clinic may be cited in illustration. A boy of thirteen, contact to two cases at home, was followed for some time in the clinic. He showed only a positive tuberculin reaction, but no demonstrable lesion. He returned to the clinic after a seven-month interval feeling well and in apparently as good health as before, but an X-ray taken routinely showed an acute, adult type of lesion throughout half of one lung field, requiring immediate hospitalization. A girl of about the same age reported to the clinic every four months, but, since she was gaining normally and seemed so well, she

was not X-rayed for fifteen months. Then it was found that an adult type of lesion with a cavity had developed and it was necessary to hospitalize her and institute pneumothorax.

The cost of periodic X-rays is a considerable item but a necessary one. After the status of a case is well established, the less expensive paper films should be adequate for follow-up. Fluoroscopy has the great disadvantage of not giving a permanent record for comparison at the next examination.

One must not forget also that if these children attend the tuberculosis clinic regularly they probably will not attend other clinics. The responsibility for the correction of other defects must rest with the tuberculosis service. A child may have an apparently healed primary focus or a small amount of calcium in the tracheobronchial nodes that are potential sources of danger; but he may also have carious teeth, diseased tonsils, or poor nutrition and hygiene habits which need more immediate attention.

The care of these children during acute intercurrent illnesses must also be a matter of concern to the tuberculosis clinic. Many clinic children go to hospitals for care during an acute illness and these hospitals are accustomed to exchange records with the clinics. There are a considerable number of children, however, who remain under clinic supervision for a chronic disease like tuberculosis, whose families employ a private physician for the care of any acute illness. That physician should feel perfectly free to call upon the clinic for its findings, and the clinic records and X-rays should be open to him at any time.

The care of the tuberculous child is not complete unless, wherever possible, the source of infection is found and contact broken, for it is a well-established fact that repeated doses of tubercle bacilli are a definite menace to the child. All contacts of a child with a tuberculous lesion should be

examined and X-rayed. If this proves impossible, at least a specimen of sputum should be examined for each contact. Sometimes an unrecognized case of active tuberculosis is discovered, but often the source of infection is found to be an older member of the family with a chronic cough or "bronchitis" which proves to be a fibrotic tuberculous lesion with a positive sputum. The examination of adult contacts is particularly worth while in working with the younger age groups. In a city like New York the school child has so many possible contacts with tuberculosis that the source of infection often lies outside the home. The infants and preschool children, however, have a much more limited circle of contacts, and it is often possible to find the source of infection with comparative ease. When the source of infection has been found, the contact must be broken if the child is to be safeguarded. The manner of doing this will vary with the individual case. It may be that the adult can be sent to a sanatorium or, in other cases, it may be necessary to remove the children from the home. In a few cases, if the intelligent cooperation of the family can be secured, the institution of rigid precautions in the home may be sufficient.

From our accumulated experience of about two years, we feel convinced that for the proper handling of the problem of tuberculous infection and disease in children, a separate, adequately equipped clinic, staffed with competently trained and experienced medical and nursing personnel is essential. Also, that in order to secure effective care for tuberculous children, the problem must be viewed and dealt with essentially from the angle of the family, every effort being made to secure the intelligent and understanding cooperation of the parents and adult members of the group.

PUBLIC HEALTH NURSING SERVICE FOR RURAL CHILDREN[1]

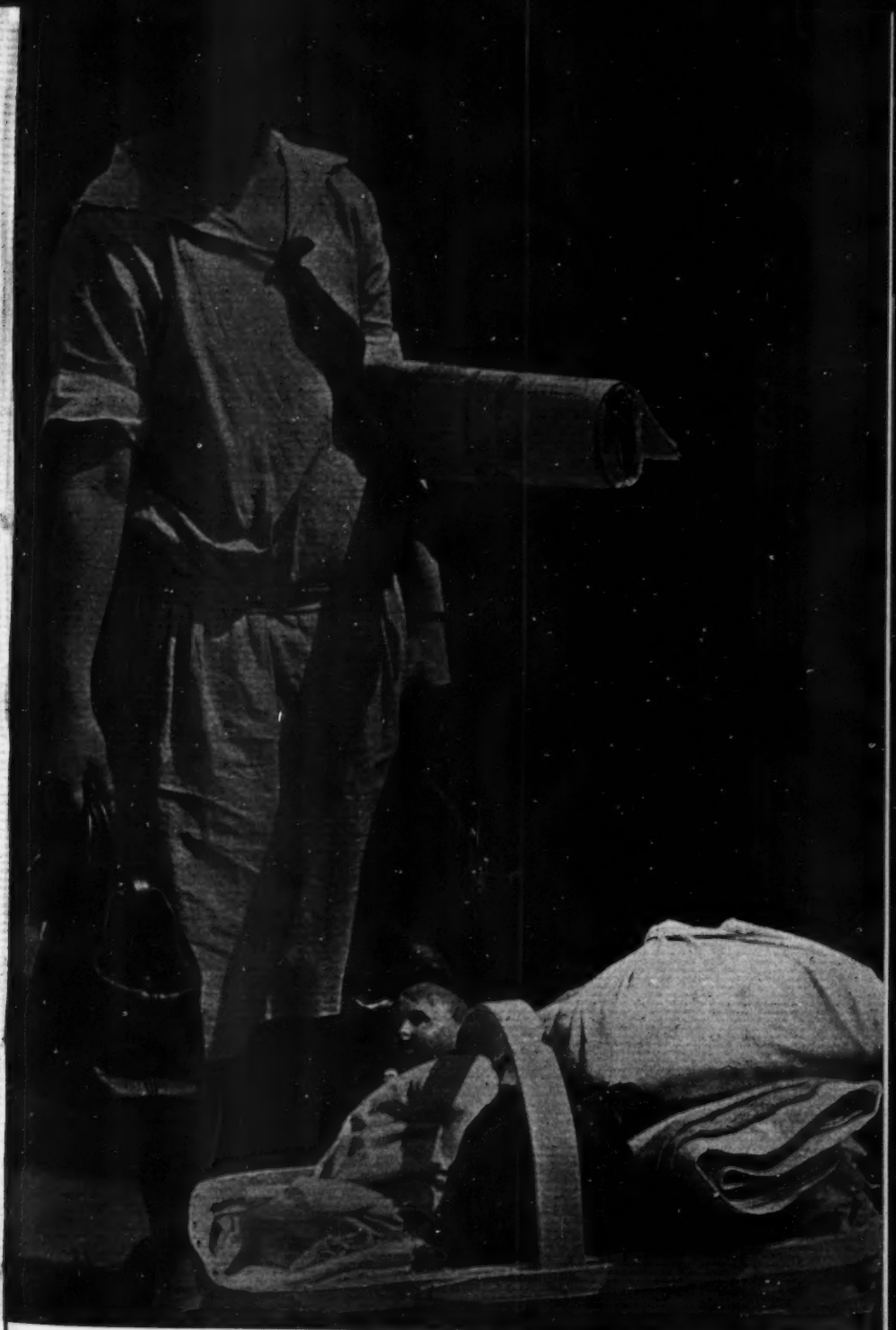
by MARIAN G. RANDALL, R. N.

THE promotion of the health of rural children and what can be accomplished for them by county nurses is of increasing interest to those concerned with the developments of rural public health practice. The workers in many localities have been stimulated by the White House Conference on Child Health and Protection to take stock of the actual conditions and accomplishments in their respective territories. In fact, it was strongly recommended that careful detailed studies should be made of local situations as "a means of weighing their progress in terms of that most sensitive index—the children." Studies of actual experience will contribute to the necessary factual basis for further improvement in child health programs, and for evaluating this phase of public health nursing practice. They are especially valuable in a period of economic depression and financial retrenchment, when many organizations are forced to appraise each type of service in order to select those of relatively more importance.

The series of studies undertaken by the Milbank Memorial Fund, upon which several reports have been made, are directly in line with the recommendations of the White House Conference and relate particularly to the work of public health nurses under official agencies. This paper summarizes the results of a study in Cattaraugus County of nursing services rendered to and received by infants and preschool children.

The Cattaraugus County Health Department, serving a

[1]This is the fourth of a series of papers representing the results of studies of public health nursing in different types of official health organizations.



Public health nurses teach bedside nursing care by giving demonstrations in the home

The rural mother and the visiting nurse have important responsibilities

primarily rural area of 1,343 square miles in the southwestern part of New York State, has had a generalized nursing service for several years. There are two supervisors and a director of the Bureau of Nursing, and during the year studied there was an average of twelve staff nurses, each serving a population of 3,500 to 4,500. It should be remembered that the following analysis relates only to part of a generalized public health nursing service and that each phase of the service is influenced and largely controlled by the total demands of the health department program.

The percentage distribution of total time of all staff nurses shows that 8 per cent is devoted to all types of clinics and teaching conferences. Of the time spent in actual field visits, 19 per cent is devoted to infants and 15 per cent to preschool children.[2]

This study is concerned with the work of four nurses and the services received by 866 children, which may be taken as a fair sample of the entire County. The work of each nurse was studied for a twelve-month period which is the usual procedure for administrative reports. The services received by each child concern a year of its life. The data are taken from the records of health supervision of infants and preschool children by four county public health nurses and from the clinic and other health department records available for these children.

In planning for the collection of this factual material, it was necessary to emphasize the importance of sufficient uniformity in record-keeping to give comparable data about every case and every visit, for results arrived at by statistical methods are no sounder than the original data themselves. Familiarity with the policies of the health depart-

[2]Winslow, C.-E. A., Dr. P. H.: Health on the Farm and in the Village. New York, The Macmillan Company, 1931, p. 179.

ment and repeated observations of the nurses at work in homes and in clinics have made possible the interpretations which records alone fail to supply.

NATURE AND EXTENT OF SERVICES

As an agent of the health department whose objectives are the prevention of disease and the promotion of health of all the people living within the given territory, the county public health nurses are assigned manifold duties and responsibilities. It becomes of interest to know the extent to which they can and do give some form of supervision to the infants and preschool children living in their districts. In most official organizations the number of children receiving public health nursing supervision, or the case load, is not included in the regularly recorded statistics of the nursing service. While "visits," the generally used unit of reporting, give a valuable index to the volume of work carried, the quality of service and the results accomplished are obviously more fully described when information is added about the *number* of individual children receiving the supervision.

During the twelve-month period ending February 1, 1931, the four nurses working in the three nursing districts of Ellicottville, Cattaraugus, and Salamanca, made a total of 1,369 home visits to 270 infants and a total of 1,755 visits to 596 preschool children, which in terms of volume of work carried in this generalized program means that each nurse may be expected to make an average of 342 visits to 68 infants and 439 visits to 149 preschool children. This is an average of 5 visits per infant and 3 visits per preschool child.

What proportion of the total population in these age groups received any public health nursing service? Our sample of 270 infants was visited at some time during the year studied but includes all those who were less than one

year at any time during the period. Very few of them, in fact only the births occurring in the first month of our period, were in the population and within the first year of life for the entire year studied, but any child visited even once during the period, as an infant, is counted. There were 366 reported births in the three nursing districts studied in the year 1930. This may be used as the number of children in the population under one year at any given time. Using it as the number of infants in the population at the first month of our period, there were in addition approximately 30 new babies in each of the eleven succeeding months of our year, or 330 more infants who might have been visited by the nurse. In other words, the total infant population includes the estimated number of children under one year of age at the beginning of the period plus the live births during the remainder of the year. Therefore, the 270 infants in our sample represent 38.8 per cent of the 696 infants who were in the population at the time and might have received public health nursing service.

In taking a year's cross section of the nurses' work, there are obviously certain difficulties in confining the individuals to specific age groups. The more accurate and desirable method is to take a small number of infants and follow them through for the first year of life. This has been done for all the babies born in the three districts in the months of January, February, and March, 1930. There were 98, and 37, or 37.8 per cent, of them received some public health nursing service during their first year of life. This checks so closely with the other method used that it is reasonable to record that the practice in Cattaraugus County makes some public health nursing service available for 38 per cent of the infant population.

The total preschool population may be estimated from the census figures, which for the 1930 census give the total popu-

lation of Cattaraugus County as 72,398, with 5,213, or 7.2 per cent, between the ages one to five. Applying this percentage to the total population of the three nursing districts, which is 22,383, there were 1,611 preschool children who were potential cases for the public health nurses. The 596 preschool children in our sample represent 37 per cent of the total children in this age group.[3] These figures give a representative picture of the county work, as they comprise the work of one-third of the county nursing staff and include the urban section of Salamanca as well as the village and more truly rural sections. These results compare very favorably with the experience of the Commonwealth Fund Child Health Demonstration in Rutherford County, Tennessee, where in the last year of their demonstration 46 per cent of the infants and 29 per cent of the preschool children received some supervision.[4] It must be borne in mind, however, that the accomplishment in demonstration areas naturally exceeds that of the many rural sections where little or no county health work has been organized.

Prenatal Care. The modern program for the protection of child health begins, of course, with the prenatal period. The maternity program of the County has been confined largely to an educational service, and the extent to which the mothers received medical and nursing supervision and the quality of service have been discussed in previous papers.[5] But before beginning the detailed analysis of the health services received

[3]Only those children who were in the preschool group at the beginning of our period are included in our sample; therefore, additions to the preschool population from the infant group are not necessary.

[4]Mustard, H. S., M.D.: Cross-Sections of Rural Health Progress. New York, The Commonwealth Fund, Division of Publications, 1930, p. 118.

[5]Wiehl, Dorothy G.: Prenatal Care of Rural Mothers. The Milbank Memorial Fund *Quarterly Bulletin*, July, 1931, ix, No. 3, pp. 95-102.

Randall, Marian G.: Maternity Service by the Rural Public Health Nurse. The Milbank Memorial Fund *Quarterly Bulletin*, July, 1931, ix, No. 3, pp. 103-118.

by our sample of 270 infants it seems fitting to note that the mothers of 98, or 36 per cent, had had some medical supervision in the prenatal period and the mothers of 109, or 40 per cent, had received one or more prenatal visits from the public health nurse. Twenty-eight of these babies were born in a hospital, and only six were not attended at birth by a physician.

Table 1. Age of infants at time of first visit from Cattaraugus County public health nurses.

Age of Infant at Time of First Contact	Infants First Visited by Public Health Nurse at Specified Age	
	Number	Per Cent
ANY AGE	194[1]	100.0
Under one week	68	35.1
One week but less than one month	40	20.6
One month	17	8.8
Two months	16	8.2
3-5 months	25	12.9
6-8 months	16	8.2
9-11 months	12	6.2

[1]Excluding 28 infants born in hospitals, 3 infants not visited in homes, and 45 infants for whom the date of birth or date of first visit were not recorded.

First Contact with Infants. The age of the infant when health supervision is started gives one index of quality of service. If the teaching of newer and improved methods of infant care are responsible for some of the reduction in infant mortality, the value of the health services can be increased as they are made available in the earliest possible period of the infant's life when the incidence of death is highest. This qualitative measure is shown in Table 1, indicating the age of the infant at the time of the first visit from the county nurse. Thirty-five per cent of the babies visited received some health supervision from the nurse in the first week of life, and 55 per cent were visited before they were a month old. The quality of supervision shown by these figures supports the conclusion[6] that the public health nursing services have aided in bringing about the reduction of infant mor-

[6]Winslow, C.-E. A., Dr. P. H.: Health on the Farm and in the Village. New York, The Macmillan Company, 1931, p. 145.

tality from an average of 81 in 1920-1924 to 61 in 1925-1929.[7]

Case Finding. How was this early contact with the infants brought about? As would be expected in a generalized program, the nursing supervision of prenatal and postpartum maternity cases makes an early visit to the infant a natural concomitant. Of 108 infants visited in the first month of life, the mothers of 59, or 55 per cent, received postpartum visits from the county nurse in the two weeks following delivery. For 100, or 46 per cent, of our total sample of infants the mother was visited by the nurse in the prenatal period. A physician requested the nurse to "go and see the mother and new baby" in 16 cases. Copies of birth certificates sent to the public health nurse furnished the first source of information for 50, or 21 per cent, of our total sample, and the other infants were known to the nurse in the following ways: nurse visited some other member of the family, 21; reported by unofficial individual such as neighbor or relative, 20; physician, 8; other agency, 8; infant first attended child health conference, 16. Considering the maternity service and the visits to members of the family for other problems, the generalized public health nursing program is the means by which the greatest number of infants are registered for the health supervision offered by the County Health Department. An analysis of the "source" of information about preschool children shows this to be true also for the children of the older age group.

[7]In an analysis of infant mortality in Cattaraugus County (The Milbank Memorial Fund *Quarterly Bulletin*, January, 1928), Miss Wiehl shows that the reduction of infant deaths was almost wholly due to the decrease in deaths from communicable diseases, respiratory and gastro-intestinal diseases, all of which are preventable by organized effort. She further points out that more than two-thirds of all infant deaths were attributed to the causes classified as "Malformations and Early Infancy," and even though the decline in deaths from preventable causes continues, it will have an increasingly slight effect on the gross infant mortality, and the reduction in the infant mortality will be limited unless the mortality from these early infant conditions also can be reduced.

Preschool children are weighed and measured at regular intervals in the child health conferences

Results of the examinations at the child health conferences are reported to the family physician

Frequency of Visits to Infants. Another index of quality of service is the continuity of visiting or supervision by the nurse over the period of the first year of the infant's life. This is shown in Table 2. The fact that with only two exceptions fifty-one babies who were known in the first month of life were revisited by the county nurse sometime in the two-to-five-month period and again in the last six months of the first year indicates that the opportunity for continued supervision was utilized.

Table 2. Health supervision by public health nurses for 110 infants who had completed the first year of life according to age at time of first contact and the continued supervision during the year.

Month of First Contact	Infants First Contacted in Each Period	Infants Receiving Continued Supervision in Each Period	
		2-5 Months	6-11 Months
ANY MONTH	110		
First month	51	51	49
2-5 months	22	22	17
6-11 months	37		37

The amount of supervision given to individual babies is indicated by the number of nursing visits they receive. For a group of 113 infants who had completed the first year of life and lived in the territory the entire period, only 5 per cent were visited once during the year, 26 per cent were visited from two to four times, while 69 per cent had five or more visits from the nurse. This is further evidence that the nurses give continued supervision to the infants they contact.

Frequency of Visits to Preschool Children. Similarly, our data indicate that the nurses gave rather intensive supervision to most of the preschool children with whom they had made a contact. The distribution of 202 preschool children, known to the nursing service for twelve months, according to the number of visits received in a year shows that 39, or 19 per cent, had one visit; 90, or 45 per cent, had from two to four visits; and 73, or 36 per cent, were visited five or more times.

OBJECTIVES OF THE SERVICES

The objectives of the public health nursing service for infants and preschool children are to assist in protecting and promoting health and in preventing disease. There are specific points to be included in the content of information which the nurse endeavors to teach the mothers, and these will be discussed in the following paragraphs from various aspects; namely, the extent to which each objective was included in the contacts with the total group, the amount of effort or the number of visits involved, and some of the results accomplished.

Hygiene, Nutrition, and Daily Routine. The educational service which the public health nurse should be equipped to give to the mothers of young children includes the knowledge of the daily routine care of the child in relation to his sleeping, bathing, eating, playing, and his behavior in general. The nurses' records for our sample of children indicated that hygiene and nutrition were part of the content of their visits for over 95 per cent of the infants and preschool group. For 4 per cent of the children there were special nutrition problems, *i.e.*, formulas or special diets about which the nurses instructed the mothers and assisted her in interpreting and carrying out the physicians' orders. Some form of "behavior problem" was a subject of discussion between the mother and nurse for 50 per cent of the children.

Bedside Care. When, as in Cattaraugus County, there is no agency giving a morbidity service, it becomes a difficult problem to know to what extent the county nurses can supervise the care of sick children. With emphasis put upon teaching some other person how to carry on, the nurses gave bedside care at time of one or more visits to 60, or 37 per cent, of 161 infants visited in the first month of life; to 45, or 26 per cent, of 170 infants visited in the two-to-five-month period;

and to 23, or 16 per cent, of 136 infants visited in the six-to-twelve-month period.

In the preschool group only 26, or about 5 per cent, of the total group received bedside care from the county nurses.

Communicable Disease. A small proportion of the communicable disease visiting is assigned to the nurses, because the director of the communicable disease bureau assumes the responsibility of investigating cases and contacts and requests the nurse to visit only when some special instruction regarding the care of the patient is necessary. Only 43, or 5 per cent, of our total sample of younger children were visited by the nurses for any communicable disease in the year's period and four others were visited as contacts to a communicable disease.

Measurable Results. While some of the results of public health nursing activities, such as improvement in the health and well-being of the children are difficult to measure, there are others which are tangible enough to lend themselves to definite groupings. For example, a complete physical examination by a physician is one of the objectives in the health supervision of children, and as a means of accomplishing this, child health conferences conducted by a doctor and a nurse are held periodically in various centers in the County. All infants and young children are invited to attend, and the results of the examination are sent to the private physician

Table 3. Results of home visits by public health nurses to infants[1] and preschool[2] children on their attendance at child health conference.

Public Health Nurse Visits for Child Health Conference	Total Children	Children Attending Child Health Conference	
		Number	Per Cent
ANY VISIT	320	109	34.1
None	92	12	13.0
One	93	30	32.3
Two	53	24	45.3
Three	43	21	48.8
Four and over	39	22	56.4

[1]Infants who had completed first year of life.
[2]Preschool children known to the service twelve months.

for further supervision and treatment when necessary. In addition, an educational service is offered at these conferences in matters pertaining to the routine care and feeding of young children. Attendance at the child health conference, then, may be used to designate an accomplishment or result and this has been tabulated for a sample of infants and preschool children in Table 3 in relation to the number of nurses' visits[8] to these children for this purpose.[9] Thirty-four per cent of these children attended a child health conference one or more times. Evidently the personal contact of the nurse's visit is essential, for only 12, or 13 per cent, of the children not visited attended the conference. One visit by the nurse more than doubles the attendance, for 30, or 32 per cent, of the children receiving a single visit attended the conference. The second visit does not increase the attendance in proportion and in fact, as the table indicates, more than two visits have relatively little significance in the increased percentage of attendance. While repeated visiting does bring about some results, it would seem advisable that it be directed only toward those children who because of some special problem need it most. In other words, after a certain point results would be measured not so much by increased attendance but in relation to individual problems.

Another sample of measurable results which can be shown from the consumer's point of view is indicated by the number of children in our sample who have been immunized against

[8]These visits were counted from the nurses' records. In some instances it was the only recorded purpose of the visit and in others several other items were discussed. While it is true that a nurse might not record a child health conference every time she talked with a mother about it, enough emphasis was put upon the importance of recording the full content of the visit to make the percentages closely approximate the actual practice.

[9]There were no significant differences in the figures for infants and preschool children.

diphtheria. As shown in Table 4, 39 per cent of the children had toxin-antitoxin. Again the smallest percentage of the children immunized was not visited by the nurse.

Table 4. Results of home visits by public health nurses to infants[1] and preschool[2] children on diphtheria immunization.

Public Health Nurse Visits for Toxin-Antitoxin	Total Children	Children Having Toxin-Antitoxin	
		Number	Per Cent
ANY VISIT	274	107	39.1
None	118	35	29.7
One	83	36	43.4
Two	51	21	41.2
Three	8	6	75.0
Four and over	14	9	64.3

[1]Infants who had completed first year of life.
[2]Preschool children known to the service twelve months.

The problem differs somewhat from that of the child health conference, however, not so much from point of view of the individual child but from the social or public health approach. Even though it is still undetermined what per cent of the population should be immunized, from the public health viewpoint it is satisfactory if only a portion of the children receive immunization. One home visit by the nurse to explain toxin-antitoxin to the parents increases the percentage of immunizations considerably, for 43 per cent of the children having one visit were protected. Two visits brought about the same result as shown by the 41 per cent of the children immunized. While three and four visits do increase the attendance, the nature of the public health problem is such that the question arises whether the immunization of fifteen children at the cost of so many visits is an economical and proper use of the available time and service.

The same principle of measuring results can be applied to the correction of defects. For our sample of children there were only 55 who had reported defects, and 12, or 21 per cent, known to have corrections. Four of the children who had corrections were not visited by a nurse and three had but one

visit. These numbers are small, but the indication seems to be that repeated visiting does not bring about proportionately high returns and the seriousness of the individual problem might well be the determining factor for repeated visiting.

The reasons why certain results are not accomplished indicate the further problems to be overcome. For example, the services of the child health conference and protection against diphtheria are provided by the County but no regular provision is made for correction of defects. If after one or two visits it is perfectly obvious that a family cannot afford to have the children's defects corrected, even though they are quite willing to do so, repeated visits by the nurse can have little or no effect for this problem, unless she can offer a means of getting this accomplished. Various opportunities have been made available by other agencies and by tonsil and dental clinics, but these are occasional special projects. In other words, the available medical, clinic, and hospital facilities influence the extent to which certain types and frequency of service by the public health nurse can be made profitable.

ADMINISTRATIVE QUESTIONS

There is a significance to each of these findings based on records of actual practice which may be used as bases for interpreting and changing policies and standards. In other words, "the entire fact-finding process is valueless unless the results are not only made available, but *used* as tools for improving public health nursing service."[10] For example, it will be agreed that a higher quality of service to young children is rendered by continuous health supervision. Repeated home visits by the nurse are accomplished through a greater expenditure of time and effort in a rural than in an urban area

[10]Randall, Marian G.: Use of Records and Statistics in Special Studies. *Public Health Nursing*, August, 1932, xxiv, No. 8, pp. 430-432.

because of the distances and poor roads it is necessary to travel, especially in bad weather.

These physical factors, as well as many others, need to be taken into account in setting up standards for frequency of visiting. The standards for infant visiting in an urban organization may be to visit once a month to six months and twice in the six-to-eleven-month period, but in a rural area a more practical standard may be four times in the first year, insofar as possible in the first, third, sixth, and ninth months. They cannot be compared. It is, of course, the individual case which must determine the actual need for more or less frequent supervision, but "standards" are a valuable guide in planning the program of work. There is probably more variation from standards in rural than in urban practice, and the rural nurse is called upon more frequently to exercise her individual judgment in determining the amount of service she can give to a family. The reasons for her decisions form the bases of actual practice, and upon these points she needs frequent help and guidance from her supervisor. Standards can then be determined by the local situation and their value increased as they are tested by comparison with actual practice and changed as the need indicates.

Standards also include the objectives of the service, the content of the different types of home and clinic visits, the techniques and procedures and, of course, the scientific knowledge which should be the basis of the entire program. While written instructions and outlines of techniques and procedures are invaluable tools to be distributed, it is necessary to know by discussion with and observation of the individual *how* she is interpreting these and what is her quality of performance. In other words, adequate supervision must include frequent observation of the nurse at work in all types of activities. The study of the records which nurses write

about their activities is another means of supervision, and some of the possible uses of this information are illustrated.

The process of *selection* of cases and of amount and frequency of service, according to relative importance in the total program, is one of the most difficult administrative problems in official health agencies. That there is a selection is evident from an analysis of the extent to which the health services reach the entire group in any locality and the variation in amount of service the cases receive, but it is not so clear what bases of selection have been used.

The study of actual practice in Cattaraugus County revealed that the economic status of the families does not act as a selective factor for the frequency of nurses' home visits.[11] While the problems involved must be the first consideration, the question naturally arises as to the relative need for frequent visiting in the higher and lower economic groups. The foregoing material also illustrates the possibility of trying out different policies for home visiting in relation to certain objectives. If, for instance, as the present practice indicates, the largest percentage of children that attend the child health conference and have toxin-antitoxin receive one or two visits from the nurse, it might be worth an experiment to limit the visits for these purposes providing there are no other problems in the family requiring the nurse's special attention.

The numerous demands of each type of activity in a generalized public health nursing program necessitate careful planning and the accomplishment of results is directly related to the degree to which the nurse is able to select problems according to relative importance. The bases of selection can best be determined by the use of an experimentation with factual data about actual practice.

[11]Randall, Marian G.: Public Health Nursing Service in Rural Families. The Milbank Memorial Fund *Quarterly Bulletin*, October, 1931, ix, No. 4, pp. 189-203.

Physical examinations are made at child health conferences conducted by a doctor and a nurse

The problems of maintaining the health and well-being of children are universal

SOCIALIZED CAPITALISM

A Recent Article by Albert G. Milbank Reviewed

THE principles and methods which have proved sound and fruitful in the organization of public health and preventive medicine may well be studied by those who are seeking solutions for our social and economic problems, according to an article entitled "Socialized Capitalism" in the July issue of the *Survey Graphic*, which was written by Albert G. Milbank, president of the Milbank Memorial Fund. After analyzing these basic principles and methods, Mr. Milbank proceeds with constructive suggestions for economic planning which have attracted wide approval, and should be of interest even to readers who have no primary concern in the field of economics.

"While we are confronted with the sorry spectacle of a breakdown in our political and economic life," says the author, "it is refreshing to turn our minds toward the notable achievements in the social field. The investment in that field has maintained its value in a world of crumbling prices. It has continued to pay dividends in terms of human health and happiness in contrast to a depressing record of omitted dividends and defaulted coupons.

"Take, for example, the solid and enduring accomplishments in the field of public health and of preventive medicine. Those accomplishments are based, not so much upon a social plan, as upon an intelligent development of sound principles. What are some of those principles and can they be applied to the political and economic patients?

"At the heart and kernel of the public health movement lies the idea of prevention. Public health is essentially preventive rather than curative. Social maladjustments, insofar

as they originate in preventable organic and mental diseases, are attacked at the source. Is it not worth while to consider whether social maladjustments which originate in preventable economic diseases may not also be attacked at the source?

"Private charity and the expenditure of public funds on a vast scale to minimize, after the damage is done, the suffering of the victims of a self-seeking individualism, should be just as much outmoded as the old-fashioned and discarded concept that the sole *raison d'être* of the medical profession is to cure human maladies. Funds to furnish work and home relief to the unemployed, measures such as the National Credit Corporation, the Reconstruction Finance Corporation, and the Glass-Steagall Bank Credit Act, are to be commended for, when the economic system fails to function, remedial measures must be resorted to, just as the ailing individual needs the ministration of his physician. But a medical profession which considered that it had discharged its complete duty to the community when it had prescribed remedies to those who are sick in mind or in body and which gave no constructive thought to measures calculated to conserve the health of the community, would fail utterly in its higher obligations to society.

"The second fundamental principle upon which has been reared an enduring social structure is cooperation. The activities of voluntary agencies in the health field have been placed at the disposal of the health officers of the nation, state, county, and municipality, and by combining the knowledge, experience, efforts, and resources of public and private agencies into a coordinated and cooperative program, notable progress has been made in reducing the incidence of death and disease. Cooperation should be one of the fundamental principles upon which to rear an improved political and economic order.

"The time has come when cooperative agreements between competitors which have an economic and social justification should be sanctioned by law. The penalties of the law should be reserved for those who, for their own benefit, abuse this right to cooperate. This was the fundamental principle underlying that branch of the common law which dealt with the evils of monopoly. Our trouble arose, as it has on so many occasions, when we attempted to legislate a sound legal principle into an unsound statutory declaration of that principle.

"A third fundamental principle upon which developments in the field of health have been based, is the growing recognition of the importance of the emotional complexes in determining human behavior. We like to think of ourselves as rational beings. As a matter of fact, it is our emotions rather than our reasoning which chiefly influence our action. Fear and courage, hate and love, greed and generosity move men and women to do amazing deeds of good and of evil.

"Any economic plan which ignores the emotional complexes of human nature is bound to fail. For example, we are too inclined to say 'Don't'—not only to say it, but to rush to the legislature to embody the dont's in innumerable statutes designed to make men behave like plaster saints with the inevitable result of making them behave like human devils.

"Another fundamental principle observed by medical leaders is to isolate and treat the ailing tissue and not to commit mayhem on the entire body. In the political field the tendency seems to be, when an abuse appears in the economic or social life of the country, to strike at the whole system of which the abuse is only a separable feature. Two obvious examples of this are found in the Prohibition Law and the Sherman Law.

"There was a general public disgust with the evils of the

saloon but instead of dealing with this subject as the English have done with relation to their pub, and in contrast with the way in which Canada handled this problem, we attempted to sweep away the whole custom of drinking alcoholic beverages. The Sherman Law grew out of an emotional revolt against the indefensible practices of big business of the period prior to 1890 and trust-busting became the popular sport of politicians, but, in spite of this and in spite of the prosecutions which were accelerated during President Roosevelt's term, mergers and consolidations have continued, and the Supreme Court finally had to read into the Sherman Law the 'rule of reason,' which is about as far as the Court can go until the Act is amended.

"Still another fundamental principle which is of the very warp and woof of the public health movement, is founded upon the basic concept which inspires it and gives it vitality. Its purpose is to promote the health, happiness, and welfare of the people. It is not consciously self-seeking but unanticipated economic advantages have developed as by-products of its activities. To take but one example, it has been estimated that for every dollar spent in the antidiphtheria campaign conducted by the commissioner of health of New York City, three dollars of the taxpayers' money was saved in actual out-of-pocket expenses for medical, medicinal, hospital, and nursing care. By the same token, business will serve its own interests by broadening its purposes to include social objectives as well as profits.

"The profit motive always has been and, within the predictable future, will continue to be the strongest incentive in industry. Too often, however, it has been construed to mean maximum profits within a minimum time. This has produced the feast-or-famine experiences of business which are noticeably finding less favor. It is now becoming con-

vincingly clear that the buying power of the community is just as essential to profits as low-cost mass production and distribution, which were thought to be all sufficient."

Commenting on Mr. Milbank's views that investments in public health save money for the community, the *New York Times* says editorially, "Mr. Milbank has a right to urge such investments, for though he could make no reference to his own part in such activities in the field of public health, for example, it is known that he has practiced what he here preaches." The *New York Herald Tribune* makes similar comment and praises the author for suggesting "the needs and ways of putting heart and conscience into the conduct of industry." President Glenn Frank, of Wisconsin University, was so impressed by Mr. Milbank's suggestion that the principles underlying public health work be applied in economics that he devoted one of his syndicated editorials to a summary of this part of the article.

The interrelation between social service and material resources is presented as follows by Mr. Milbank:

"It is obvious that the social services are closely related to the amount of resources, public and private, available for such purposes. In fact, if the social services outdistance the available resources, they will not only fail to reach their objective but they will become an actual factor in contributing to a breakdown of the economic system upon the continuance of which their very existence depends.

"It is equally true that the economic welfare of the country is largely dependent upon the social well-being of its people. A high rate of mortality and morbidity, ignorance and discontent, lack of faith in the intelligence and integrity of those who have assumed leadership—all such factors react unfavorably upon the smooth functioning of the economic system.

"The primary motive of the social services is to promote the health, happiness, and welfare of the people with no conscious awareness of realizing a pecuniary profit therefrom. Nevertheless, substantial profits to industry have resulted from these social movements. The primary motive of industry is to make profits with very little, if any, conscious awareness of rendering a social service but, in fact, an honestly managed business is an institution of very real social value even if its management is hard-boiled. With each progressive step in the direction of humanizing and socializing its operations it will insure and stabilize its continuous commercial success."

Comparing socialism with capitalism and noting the shortcomings of either system in its extreme form, Mr. Milbank declares that capitalism should be rehabilitated through the humanizing, mutualizing, stabilizing, and socializing of industry.

In humanizing business through extension of the present work of personnel directors, holds the author, there should be recognition of the "sensibilities and aspirations, hopes and fears" of working men and women. An important way of mutualizing business, he believes, is to provide further opportunities for employees to become stockholders.

A long stride toward stabilization of business would be the substitution of cooperation for competition, which, the author says, has too frequently meant the death of trade. He suggests that cooperation take the form of agreements among competitors "to conserve natural resources and to maintain a reasonably profitable balance between production and consumption."

In order to permit such agreements the Anti-Trust Laws would have to be modified. He suggests a three-year moratorium of these laws as a measure affording emergency relief

to business. If Congress should wish to impose a special safeguard, he says, it might limit cooperative agreements to companies which during the periods of the agreements are earning a smaller percentage of net profit in relation to their gross sales than their average over a given previous period of, say, five years.

Meanwhile, according to Mr. Milbank, measures to help employees should be evolved. A system of unemployment reserves is proposed as the next step. The employer should contribute "out of profits when earned," and the employee "out of wages when received." He figures that if 5 per cent of the net profits and 2 per cent of the aggregate payroll of industry had been set aside during 1925-1929, the reserves thus created would have amounted to five billion dollars.

Finally, says Mr. Milbank, the gravest problem confronting the nation, is "not economic bankruptcy, threatening as that is, but moral bankruptcy." A spiritual rebirth is necessary to eradicate racketeering, bribery, graft, and similar "sins against society."

A few typical newspaper comments on the economic views of Mr. Milbank may be quoted. To the *Post-Gazette*, Pittsburgh, Pennsylvania, his statement indicates that "we stand on the threshold of a new era in business." The *New York World-Telegram* says that "the spirit of his courageous and bold philosophy recommends itself highly to the business world generally." The *Star-Eagle*, Newark, New Jersey, in a similar vein, praises the "stimulating and frank" article. The *County Review*, a weekly, in Riverhead, New York, says that "leadership is not bankrupt when men of the caliber of Mr. Milbank sound the imperative call for the reconstruction of our economic society on the basis of social justice."

EFFECT OF A WHOOPING COUGH EPIDEMIC UPON THE SIZE OF THE NONIMMUNE GROUP IN AN URBAN COMMUNITY[1]

by EDGAR SYDENSTRICKER

THE extent to which an uncontrolled epidemic of an infectious disease spreads in human populations under different environments is a matter of practical importance to the sanitarian whenever any attempt at control is made. It cannot be settled easily, however, for many factors are involved. The etiology of the specific disease; the period of its infectivity; the opportunity for effective contact between susceptible individuals and infectious cases or carriers, which is subject to so many and so varied circumstances; the proportion of the population already immune—these are only some of the most essential facts required by the epidemiologist in considering the problem for a given type of community. He is faced by a complexity of conditions, so intricately related and so difficult to evaluate in exact terms, that very precise measurements of an epidemic's behavior are well-nigh impossible. Even if he arrives at a successful answer for one population group, he cannot assume its accuracy for other groups or communities.

Precision beyond certain general limits, however, is neither always necessary nor profitable, and much can be learned from observing epidemics in populations of different general types, provided reasonably complete records of histories of previous attacks and of current cases are secured. In the

[1]From the Office of Statistical Investigations, United States Public Health Service, and the Division of Research, Milbank Memorial Fund. Published by permission of the Surgeon-General, United States Public Health Service.

course of the morbidity study in Hagerstown, Maryland,[2] the opportunity was presented of observing certain epidemiological phases of whooping cough with a greater degree of accuracy and completeness than is ordinarily possible from routine records of cases reported in compliance with regulations for disease notification. This opportunity was afforded by reason of three conditions:

1. A population of over 7,000 persons was "under observation" for incidence of sickness for twenty-eight consecutive months. Each household was visited by a competent staff of field assistants at intervals of six to eight weeks in order to obtain a record from responsible informants (usually the housewife) of cases of sickness and attacks of communicable diseases. The diagnosis of cases attended by physicians (of whooping cough, such cases were 49 per cent of the total recorded) were reviewed by the physicians themselves.

2. At the initial visit to each household a careful effort was made to ascertain for each individual enumerated the age at which he had previously been attacked by whooping cough as well as by other infectious diseases. Similar information was obtained for new persons coming into the observed population during the ensuing twenty-eight months. We had, therefore, a record, although admittedly neither absolutely accurate nor complete, of those persons who had a history of clinically obvious attacks previous to December 1, 1921, and of those who had no such history.

[2]A series of reports dealing with the Hagerstown morbidity study has been published in various issues of the United States *Public Health Reports*. The reader is referred especially to the following: Sydenstricker, Edgar: The Incidence of Various Diseases According to Age. Study No. VIII. United States *Public Health Reports*, May 11, 1928. Reprint No. 1227.

Sydenstricker, Edgar, and Hedrich, A. W.: Completeness of Reporting of Measles, Whooping Cough, and Chickenpox at Different Ages. Supplement to Study II. United States *Public Health Reports*, June 28, 1929. Reprint No. 1294.

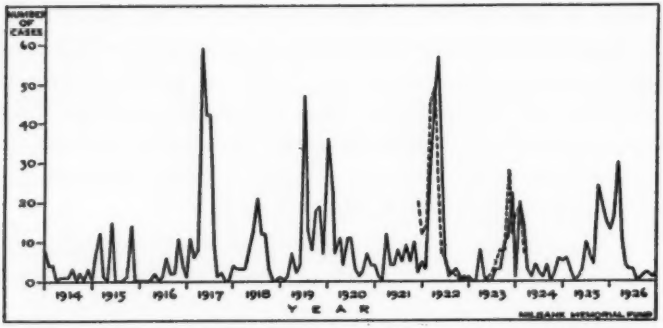


Fig. 1. Cases of whooping cough in Washington County, Maryland, *reported* to the State Health Department, 1914-1926, and cases *recorded* in an observed population in Hagerstown, Maryland, December 1, 1921 to March 31, 1924.

3. A record was obtained of all births, deaths, and of migration of persons from and into the group during the period.

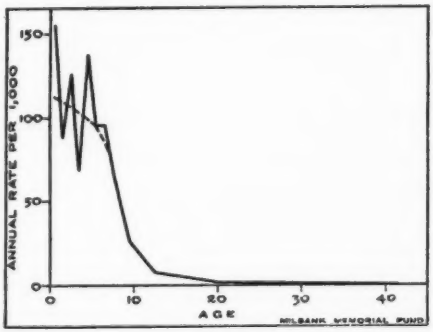
For the purpose of this particular study another rather interesting and favorable condition was found to exist. For about twenty months prior to December 1, 1921, no unusual prevalence of whooping cough had occurred in Hagerstown, a fact evidenced by our own record of previous attacks in the observed population and by the records of the Maryland State Department of Health. Almost immediately after the study was begun, an outbreak of the disease occurred. In fact, two outbreaks apparently took place, one in December, 1921 - July, 1922, and another in September, 1923 - March, 1924, but they occurred in different parts of the City and, taken together, constituted a fairly widespread epidemic over the entire area in which the observed population resided. It is proper, therefore, to regard them as a single epidemic.

In the present communication it is proposed to present such data as we were able to collect during the twenty-eight-month period that relate more particularly to the effect of the outbreak of whooping cough upon the size of the "sus-

ceptible" moiety of the population so observed, in the hope of throwing some light upon the relation of immunity to the magnitude of recurring epidemic outbreaks in a typical small urban community. Hagerstown, in 1921, had a total population of about 30,000. The group observed comprised a little less than one-fourth of this total and was from areas inhabited only by white residents.

In Figure 1 the position of the outbreak is shown in relation to the chronology of the disease from 1914 through 1926 in Washington County, Maryland, of which Hagerstown is the principal center.[3] The seasonal distribution of cases in the observed population also is portrayed in Figure 1. A total of 374 cases was recorded as incident during the twenty-eight-month period, or at an annual rate of 27.8 per 1,000 years of life observed.

Fig. 2. Incidence of whooping cough among persons of different ages in a white population group in Hagerstown, Maryland, December 1, 1921 to March 31, 1924.



The incidence of whooping cough according to age upon the total observed population is shown in Figure 2 for the period of twenty-eight months. The concentration of cases among persons under

[3]The data for Washington County, with a total population of about 65,000 are cases *reported* to the State Health Department. The dotted line in Figure 1 shows the cases *recorded* for the population observed. The fact that the latter are approximately equal to the numbers for the entire County is due principally, of course, to more complete records in the observed population. Notification of whooping cough in Hagerstown was about 15 per cent of the incident cases. The chronological picture for Washington County, however, seems fairly similar to that for Hagerstown.

Age in Years	Percentages		Numbers		
	Having Had Prior Attack	Not Having Had Prior Attack	Total Considered	Having Had Prior Attack	Not Having Had Prior Attack
Total—15	49	51	1,891	928	963
Under 1	5	95	131	6	125
1	6	94	125	7	118
2	15	85	124	18	106
3	22	78	109	24	85
4	37	63	169	62	107
5	40	60	139	55	84
6	49	51	150	74	76
7	64	36	118	75	43
8	65	35	150	97	53
9	72	28	125	90	35
10	77	23	116	89	27
11	72	28	113	81	32
12	77	23	108	83	25
13	76	24	106	80	26
14	81	19	108	87	21

Table 1. History of whooping cough among white persons at different ages up to fifteen years as of December, 1921, in Hagerstown, Maryland.

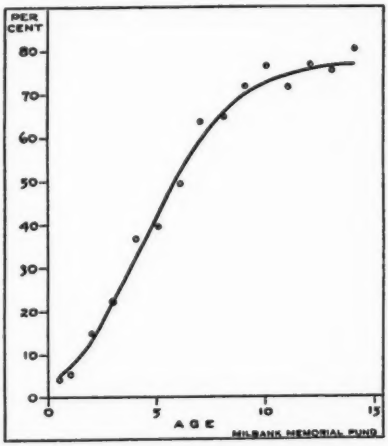
five years of age, the sharp drop in incidence upon persons five-nine years old, and the low rate after fifteen years of age at once suggest that an immunity, increasing with age, existed at the beginning of the period of observation. This indication is confirmed by the records of persons at each age for whom positive histories of whooping cough were obtained as of December 1, 1921, upon the assumption that an attack of the disease usually confers immunity. The percentages at each age with positive history are given in Table 1 and are plotted in Figure 3. The logistic curve fitted by Collins[4] to similar data for whooping cough from various sources, including that obtained in the Hagerstown study, is also shown.

[4]Collins, Selwyn D.: Age Incidence of the Common Communicable Diseases of Children. United States *Public Health Reports*, April 5, 1929. Reprint No. 1275.

The Hagerstown percentages fall closely on Collins' curve.

Now if the histories of previous attacks of whooping cough could be assumed to afford a complete and accurate record of all of the persons immune to the disease on December 1, 1921, it would be easy to determine how much of the remaining susceptible human material was "exhausted" before an epidemic "burned itself out." The facts that in an urban population the percentage of persons with positive histories of whooping cough practically reaches its asymptote at about fifteen years of age, and that this asymptote is approximately 75 per cent constitute unmistakable evidence that such an assumption is not sufficiently precise. On the contrary, it is obvious that 25 per cent of the population over fifteen years of age possessed an immunity not accounted for by histories[6] of clinically obvious attacks.

Fig. 3. Percentage of the observed population at different ages who had had attacks of whooping cough prior to December 1, 1921. (Smooth line from Collins, *see* footnote page 306.)



[6]It is realized that some of the persons *with* positive histories of whooping cough are still susceptible since second attacks do occur. The proportion of persons suffering clinically obvious multiple attacks is not large, however. In the outbreaks under consideration only 20 of the 363 cases under fifteen years of age were among persons reported to have a previous attack. Assuming this record to be absolutely correct, the immunity conferred by an attack of whooping cough is high, only 1.7 of total persons under fifteen having suffered a second attack during this period. Or, assuming the immunity conferred to be 100 per cent, the error in the record is relatively slight, being only 5.5 per cent.

The question then arises: at what ages did the individuals comprising this 25 per cent of the population acquire immunity to the disease?

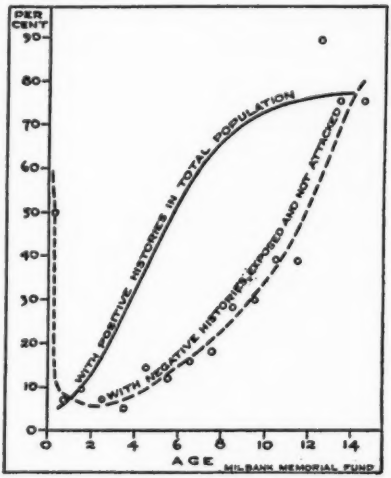
A satisfactory answer would be afforded if the experiment could be tried of taking a statistically adequate number of persons at different ages who had no history of clinically obvious whooping cough, exposing them sufficiently to active cases when such cases were at a fully infectious stage, and observing the number of such persons attacked by the disease as the result of the exposure. Such an experiment is, of course, impracticable, but we can approximate it by ascertaining the attack rate of whooping cough among persons of different ages *without histories of the disease but residing in households that were attacked* during the outbreaks under consideration. This has been done in Table 2. It will be noted

Table 2. Attack rate of whooping cough among white persons of different ages *without* previous history of whooping cough and resident in households attacked by the disease in 1922 and 1923, Hagerstown, Maryland.

Age	Number of		Per Cent	
	Persons	Cases	Attacked	Not Attacked
Total under 15	441	356	81	19
Under 6 months	6	3	50	50
6 months—1 year	15	14	93	7
1 year	12	11	92	8
2 years	59	55	93	7
3 "	41	39	95	5
4 "	49	42	86	14
5 "	48	42	88	12
6 "	55	46	84	16
7 "	45	37	82	18
8 "	43	31	72	28
9 "	20	14	70	30
10 "	18	11	61	39
11 "	13	8	62	38
12 "	9	1	11	89
13 "	4	1	25	75
14 "	4	1	25	75

that the proportion of such persons attacked (*i.e.*, for whom clinically obvious cases were recorded) was over 90 per cent at ages six months to four years, and thereafter declined to approximately 25 per cent at ages thirteen and fourteen. The numbers are too small to yield dependable results for any one year of age, but the resulting curve (Fig. 4) of the percentages of persons presumably exposed to cases in the same households but *not* attacked at least suggests that the proportion of the population which has acquired an immunity without suffering clinically obvious attack rises rapidly with age (after the first six months of life) to a point which approximates the 25 per cent for whom no history of previous attack is ordinarily given. The further suggestion is afforded that the percentage of persons acquiring an immunity without any clinically obvious or remembered attack does not rise with age at the same rate at which the percentage of persons with clinically obvious attacks rises with age; the curve of the former, as depicted in Figure 4, lags considerably behind that of the latter. Obviously, the older the child the greater is the likelihood of exposure to the disease in some previous epidemic and of a subclinical attack which conferred immunity.

Fig. 4. Percentage of population with positive histories of whooping cough and percentage of those with negative histories who were not attacked when exposed to familial cases.



It may also be that attacks of the disease tend to be milder and more frequently "subclinical" as age advances.

Whatever may be the value of these indications at different ages, the point with which this discussion is particularly concerned is the gross proportion of the population under fifteen years of age which was immune to whooping cough at the beginning of the period of observation. Of 441 persons without any history of whooping cough (*i.e.*, attacks that were remembered by the informants) and then presumably exposed to it through familial or other effective contact, 356 persons contracted the disease and 85 did not. These 85 persons may be assumed to have either acquired an immunity previous to the epidemic, or to have suffered subclinical attacks during its course.

Applying the percentages at each age obtained in our "experiment" to the number of persons of corresponding ages who were recorded as having no history of the disease on December 1, 1921, it may be estimated that a maximum of 195, or 20.6 per cent, of the 963 persons under fifteen years of age without a history of a previous attack actually possessed immunity. Subtracting, this leaves 768 persons who may be assumed to have been susceptible at that time, which is 41 per cent of the entire population in the age group under fifteen years. The method of estimation obviously is rough and the estimate itself must be regarded as only an approximation to the actual number of nonimmune persons. It is, however, more accurate for this purpose than the number of persons recorded as not having had a previous attack.

Starting with these 768 persons[7] on December 1, 1921, it is now possible to estimate the effect of the ensuing out-

[7]If practically 100 per cent of this urban population over fifteen years of age was no longer susceptible to whooping cough, these 768 persons constituted nearly all of the nonimmune in the group observed.

breaks upon the size of the "susceptible" population. In making the necessary computations, the following facts were taken into account: (1) births, (2) deaths, (3) persons reaching the age of fifteen years, (4) persons actually attacked by the disease in clinically obvious forms, and (5) persons acquiring an immunity without clinically obvious attacks, during the twenty-eight month period. Emigration and immigration of individuals from and into families constituted a negligible factor and were disregarded. Births were added to the susceptible group,[8] but persons dying, persons attacked by the disease, persons presumably acquiring an immunity during the epidemic (estimated upon the ratio of one to five clinically definite cases), and susceptible persons reaching the age of fifteen, were subtracted.[9] The computations were made as of several dates in the twenty-eight months, as shown in Table 3, and the variations in the proportion of the entire population under fifteen years of age which remained susceptible are plotted in Figure 5.

With a full realization of the necessarily crude procedure in making these approximations and of the caution that

[8]Strict accuracy would demand that persons born into the population should not be added to the susceptible group until after some period of possible "natural" immunity had elapsed. The data were inadequate for a determination of such a period or to ascertain whether or not it existed.

[9]Calculation of susceptible population under fifteen years of age at successive dates.[1]

Date	Number of Susceptibles Under Fifteen Years of Age	Add Births	Subtract			Net + or −
			Deaths	6/5 Cases	Fifteen Years Old	
1921, December	768	109	9	210	5	−115
1922, December	653	100	18	63	5	+ 14
1923, December	667	18	8	65	1	− 56
1924, March	611					

[1]To calculate susceptibles in case no epidemic had occurred, do not use the figures in column headed 6/5 cases, i.e., persons who had the disease and an additional 20 per cent who acquired immunity without a clinically obvious attack.

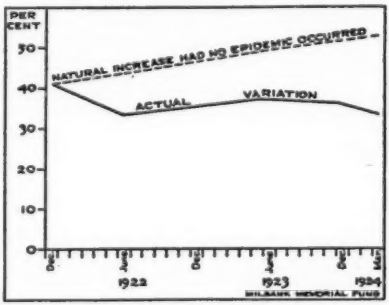
Date	Population under Fifteen Years	Total Susceptibles under Fifteen Years		Susceptibles if no Epidemic Had Occurred	
		Number	Per Cent	Number	Per Cent
1921, Dec. 1	1,891	768	41	768	41
1922, June 1	1,894	634	33	822	43
1922, Dec. 1	1,878	653	35	863	46
1923, June 1	1,869	695	37	906	48
1923, Dec. 1	1,858	667	36	940	51
1924, Mar. 31	1,834	611	33	949	52

Table 3. Variations in the number and percentage of a population group under fifteen years of age who were nonimmune to whooping cough and who would have been nonimmune if no epidemic had occurred during twenty-eight months, December 1, 1921 to March 31, 1924, in Hagerstown, Maryland.

must be exercised in drawing too precise conclusions, the following observations may be ventured:

1. The proportion of the *total* population in a typical small urban community (as judged from a sample of nearly one-fourth of the total) which was nonimmune to whooping cough after an interepidemic interval of about twenty months was about 10 per cent. Of persons under fifteen years of age, the percentage nonimmune was about 40.

Fig. 5. Variation in the proportion of persons under fifteen years of age who were nonimmune to whooping cough during twenty-eight months, December 1, 1921 to March 31, 1924, in Hagerstown, Maryland.



2. After an outbreak of the disease which immediately began in December, 1921, was acute for four months, and affected only certain areas, the proportion of the population under fifteen

years of age which was nonimmune declined to 35 per cent in December, 1922. Had this outbreak not occurred, the percentage of nonimmunes under fifteen years of age in the families actually observed would have risen to 46 on the assumption that no new immunity had been conferred on the older children[10] and that the infants added by birth were susceptible.

3. After a second outbreak, beginning in August, 1923, and lasting through March, 1924, and affecting chiefly the areas not attacked in 1921-1922, the proportion of nonimmunes in the general population was further reduced to about 8 per cent and of the group under fifteen years of age to 33 per cent.

Our inquiry thus may be regarded as an approach to the observation—admittedly incomplete—of a single epidemic in a series of epidemics of whooping cough that occur more or less periodically in a small urban community. So regarded, it indicates that when the proportion of total children under fifteen years of age nonimmune to whooping cough was as high as 40 per cent and an epidemic of the disease occurred, the total nonimmune population was not exhausted but only reduced by about one-fifth. This result is indicated in spite of the facts that opportunity for contact was afforded under the usual conditions of urban life and that no effort to control the infection was exercised by the community except to exclude cases from the schools after they became clinically manifest.

To reiterate, this is but one experience, a single "case history," as it were, of an epidemic of whooping cough. The variations in the size of the nonimmune population in prior

[10]The possibility that some of our observed population acquired immunity from carriers or from cases outside of the City could not, of course, be explored in this study.

or later epidemics in this community may have been quite different from those indicated for this particular outbreak, and the experience of a small urban community cannot be assumed to be in any way representative of rural areas or other types of towns and cities.

NEWS DIGEST

⊛ ⊛ ⊛ *Salamanders and Rural Spring Water Supplies*

THAT salamanders may pollute rural spring water with *B. coli* has been demonstrated by a special study carried on by the Cattaraugus County Department of Health with the support of the Milbank Memorial Fund. Two recent articles report the details of this study: (1) "Salamanders and Water Hygiene," by William G. Hassler, published in the May-June issue of *Natural History;* and (2) "Interpretation of Laboratory Findings in Rural Spring Water Supplies," by Edmund K. Kline and Nelson M. Fuller, published in the July issue of the *American Journal of Public Health.* The role that salamanders play in infecting Appalachian spring water supplies is outlined in the latter article as follows: "The salamanders live in large numbers buried deep within the shale along the underground streams. At certain seasons they come out from the deep recesses to the surface and travel distances of at least sixty-five feet overland. Here they feed on insects, worms, fly larvae, or similar living food. Should these be infected with *B. coli* through improper protection of the area from direct fecal pollution or surface drainage the salamanders become infected. Then they return to the depths and throw off *B. coli* for a considerable time."

⊛ ⊛ ⊛ *New Study of Negro Migration to Urban Centers*

AN interesting study of Negro migration from cotton country to cities, made by Clyde V. Kiser, has just been published by the Columbia University Press, New York, under the title "Sea Island to City." The author, who is a Research Fellow on the staff of the Milbank Memorial Fund, has investigated local conditions on

St. Helena Island, off the coast of South Carolina, and subsequently interviewed about 300 Negroes, former residents of the Island, who had migrated to Savannah, Charleston, Philadelphia, New York, and Boston. In addition to its value for light thrown on the motives for and consequences of Negro migration, the book is an absorbing human document because of its citation of personal testimonies.

The volume contains 272 pages, and sells at $3.50.

⊛ ⊛ ⊛ *Proceedings of Second International Population Congress Published*

THE complete text of the scientific papers read at the Second General Assembly of the International Union for the Scientific Investigation of Population Problems held in London in June, 1931, is now available in a book edited by G. H. L. F. Pitt-Rivers entitled "Problems of Population."[1]

The Union, which since its inauguration in 1928 has received its principal financial support from the Milbank Memorial Fund, was organized to initiate population studies depending on international cooperation and to facilitate the exchange of scientific deliberation on these problems. Many leading economists, sociologists, biologists, physiologists, anthropologists, geographers, and statisticians representing the national committees of the adhering countries participated in the London meeting, which was devoted to discussions of population and food supply, differential fertility and sterility, and the trends in structure of populations. Among the papers presented to the Assembly and included in the proceedings is "The Relation of Social Status to the Fertility of Native-Born Married Women in the United States," by Frank W. Notestein, a member of the Fund's staff and the American delegation.

[1]Pitt-Rivers, G. H. L. F. *Ed.*: Problems of Population, Being the Report of the Proceedings of the Second General Assembly of the International Union for the Scientific Investigation of Population Problems. London, George Allen and Unwin, Ltd., 1932.

⊛ ⊛ ⊛ *Peiping Union Medical College Begins Cooperation with Ting Hsien Rural Health Experiment*

ACTIVE cooperation between the Peiping Union Medical College and the Ting Hsien rural health experiment of the

Chinese National Association of the Mass Education Movement has begun under a formal agreement recently signed. This provides for exchange of services and for reciprocity in the use of facilities. The arrangement is highly satisfactory and promises important results.

Students of the College will get field training at the Ting Hsien Center. Qualified members of the Department of Health of the Movement will in turn hold fellowships at the College. Investigations of health problems in the district will be carried on by the College in cooperation with the Movement. Additions to the senior personnel of the Movement will be made in consultation with the College. Members of the public health staff of the Movement will from time to time serve on the College faculty, either as teachers or research workers. Specialists on the faculty will in exchange give field service.

As far as possible the hospital of the College will serve as the base hospital for the medical relief work of the Movement. The College will further aid the Ting Hsien Center by purchasing books, drugs, and other medical supplies for it, without any charge for this service, the materials being supplied at cost plus transportation.

During the past two years the Fund has aided the Mass Education Movement in its inauguration of the health work at Ting Hsien, which is China's first experiment with a rural department of public health.

◎ ◎ ◎ *Ting Hsien, China, Health Report is Reprinted*

THE paper by Dr. H.-Y. Yao, "The Second Year of the Rural Health Experiment in Ting Hsien, China," which appeared in the *Quarterly Bulletin* for October, 1931, was reprinted in full in the February, 1932, issue of *Health and Happiness*, published in Calcutta, India, with the following note by the editor, Dr. Kartick Chandra Bose:

"India's teeming millions live in her 70,000 villages of India. The problems of rural India are more or less due to the same four fundamental factors, viz., ignorance, poverty, physical weakness, and selfishness, against which the Chinese National Association of the Mass Education Movement has been waging a well-laid-out campaign. Many prominent persons in India, including governors of provinces, have exhorted the young growing generation to go back to the villages for

the purpose of mass education, sanitation, and rural reconstruction in general. The following article by Dr. Yao, who is the head of the Department of Public Health, Chinese National Association of the Mass Education Movement, taken from the *Bulletin* of the Milbank Memorial Fund, will be read with interest by all workers engaged in rural uplift movement in Indian villages and should stimulate them to venture on a more comprehensive program of work than has, heretofore, been employed in India."

• • • *"Medicine and the State" is Praised by Reviewers*

SIGNIFICANT testimony to the public interest in the recent survey made by Sir Arthur Newsholme for the Milbank Memorial Fund is presented in reviews of his "Medicine and the State," which was published last May and is widely hailed as an important study of the relation between the private and official practice of medicine with special reference to public health and the prevention of disease.

Among the questions discussed by the reviewers, three are outstanding, namely, Sir Arthur's freedom from prejudice, his philosophy about the important function of the family physician, and the appeal of the book for all classes of readers. Typical reactions are illustrated in the following excerpts from reviews.

The *Sheffield Independent*, Sheffield, England, says: "The book is one of the most important and comprehensive of recent years, and is written without bias or prejudice. It deserves the most careful study." The *Press and Journal*, Aberdeen, Scotland, comments as follows: "Many opinions expressed will arouse controversy, for, as the author says, 'I fully realize the perplexing and sometimes conflicting factors which appear to impel observers to opposing conclusions.' None will deny, however, that all his proposals are carefully considered, and most will agree with him that 'the maintenance of health is worth all expenditures incurred in its maintenance or renewal under efficient administrative conditions.' "

Dr. Charles V. Chapin, formerly superintendent of health in Providence, Rhode Island, makes similar comment in a letter to the secretary of the Fund. He says of Sir Arthur: "His wide practical experience in many lands, and in many types of medical work, the thoroughness of his studies and his scientific fairness, give him a unique position. He is no propagandist

and quite often fails to satisfy either side to a controversy, but he has learning and common sense, and this book is sane and helpful to all."

Regarding the position of the private physician, the *Scotsman*, Edinburgh, says: "Special note should be taken of the concluding remark in the introduction that while his aim throughout is to favour what conduces most to the public welfare and through that of each member of the community, the author is profoundly convinced that what is found best for the public and best for the patient will also be found best for the private practitioner of medicine."

The *Medical Officer*, London, calls the book "a statesmanlike representation of the present position of the medical profession in relation to the problem of sickness and its prevention." "Sir Arthur," it continues, "whose long and intimate knowledge of questions of public health in an urban community and of the wider problems of national policy has not diminished his sympathy with those whose sphere of work lies in the domain of family practice, has earned the gratitude of us all."

Commenting on the same subject, the *Friend*, London, says: "Sir Arthur Newsholme's volume is a valuable contribution to the steps which need to be taken to weld into an organic whole the practice of medicine in its threefold function of the maintenance of health, the prevention and the treatment of disease. We are evolving and must continue to evolve a new type of general practitioner trained to meet these new demands, but a condition of his evolution is the reconsideration of the medical education needful for his proper functioning."

That Sir Arthur's study has an appeal for the layman as well as for those professionally connected with medicine is emphasized by several reviewers. "The book is of absorbing interest from cover to cover," writes Dr. J. Johnstone Jervis, Medical Officer of Health of Leeds, in the *Yorkshire Post*, "and I strongly recommend its perusal by lay and professional readers alike." A contributor to *The Listener*, London, goes still farther. He says: "The book is addressed to the plain man, and I can only admire the art with which this is done." After reviewing Sir Arthur's main contentions, that same writer concludes: "But the real question remains. What does our master

—the man in the street—think of all this, and what can he be induced to do? For if we want a healthy nation we can have one; if we do not really want this, then all the wise men will preach in vain."

Dr. Haven Emerson, in *The Survey*, New York, says that "when the spirit and sense of this book are accepted into the physician-and-patient relationship and absorbed into the conduct of public and personal medical care for sick and well, we shall be a people not only saner but by that token nearer to a practical social Christianity. The book is timely, its message will be widely welcomed, its effect cannot fail to be permanent and beneficial to all that is worthy in the social aspects of medical care."

"Medicine and the State," it may be added, is published by Allen and Unwin, London, and Williams and Wilkins, Baltimore, Maryland. This volume is an interpretation of factual findings in Sir Arthur's survey of health work in eighteen European countries, which has appeared in three volumes published by the same firms, under the title "International Studies on the Relation between the Private and Official Practice of Medicine with Special Reference to the Prevention of Disease."

●●● *Who Reads the Quarterly Bulletin?*

THE *Quarterly Bulletin* of the Milbank Memorial Fund reaches an audience of widely diversified interests, located in many different quarters of the globe. Every state in the Union and nearly fifty foreign countries are represented on the *Bulletin* mailing list.

Of the 1,500 copies of the *Bulletin* sent out each time it is issued about one-fifth go to foreign countries; nearly a quarter to New York State; and 57 per cent to other parts of the United States.

Half of each edition is sent to libraries, including medical, state, public, and university. Through these 740 libraries the *Bulletin* reaches an even wider group of readers. About 10 per cent go to public health organizations and their executives; an equal percentage to educational institutions and teachers. Twelve per cent of the edition is addressed to social agencies and their staffs.